THE FOULING ORGANISMS OF PEARL OYSTER CAGES

BY

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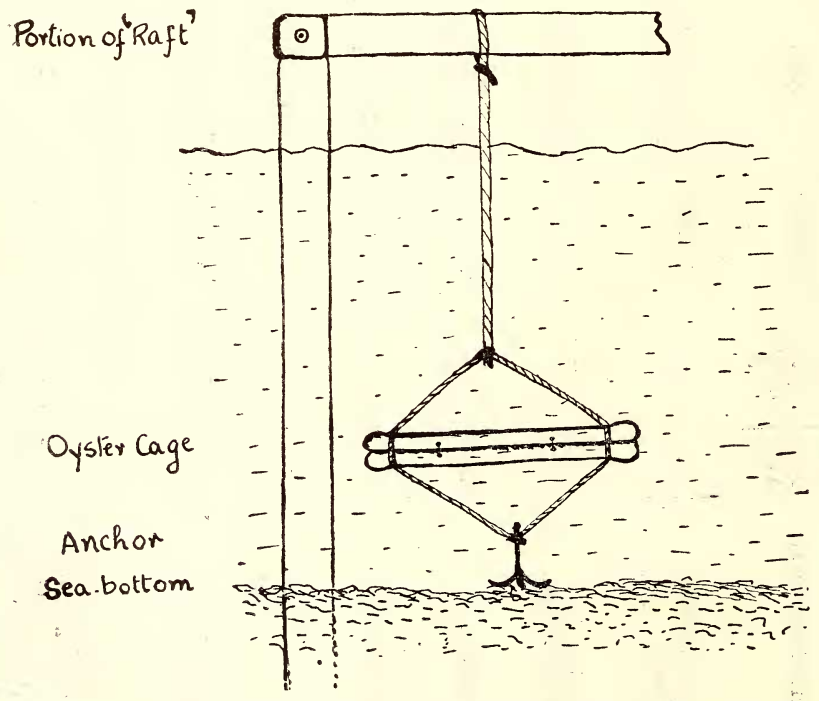
(With a text figure)

Pearl Oysters are cultivated at the Krusadai Biological Station by the so called 'raft or hanging method' which has been so popular along the coasts of Japan. They are placed in separate wooden cubicles, covered with wire-net frames, tied to a 'raft' and anchored to the bottom of the sea. While these are being cultivated, many animals, sessile and free living, are found to attach themselves to the cages. Besides being a nuisance in the oyster park in many ways, these 'fouling organisms' also compete as food rivals of the oysters, so that, in order to ensure a better and more rapid growth of oysters, it is necessary to clean the cages at frequent intervals.



The present note gives the occurrence of such organisms during the complete year from September 1947 to August 1948. The seasons of settling are also indicated.

Coelenterata: The most common Coelenterates attaching to the cages were *Pennaria disticha* Goldfuss, species of *Companularia, Obelia, Lytocarpus* and *Paranemonia*....Hydroids were found to settle throughout the year.

Nemertinea: A single specimen of *Eupolia* was observed amongst the fouling organisms in July.

Polyzoa: Polyzoan colonies were found to attach to the frames and at times to shell valves during the months from June to November. The more important of the colonies settling down were *Thalamporella rozierii* Andouin, and species of *Lagenipora* and *Membranipora.* The last mentioned genus was noticed in abundance during August and September.

Mollusca: Rock oysters, *Ostrea cucullata* Born, were common throughout the year.

Annelida: The tube-builder *Dasicone cingulata* Gurbe was abundant throughout the year. Some of them were noticed to attach themselves to the shell valves of the oysters. Of the other genera the following were found in the oyster cages in the months indicated against them.

Polydora hornelli Willey	. . . June and July
Lepidonotus carinatulus Gurbe	. . . August and September
Syllis gracilis Gurbe	. . . August
Syllis variegata Gurbe	. . . September
Phyllydoce spp.	. . . July and August

A few individuals of the heteronereid stage of *Perineris* were collected during August and some *Potodrilus* sp. were found to inhabit the cages in July.

Crustacea: The most common were the two species of Cirripedes belonging to the genus *Balanus* De Costa; *B. amphitrite* Darwin var. *venustus;* and *B. tintinnabulum* Linn. var. *communis.* Both varieties attach themselves to the shells of cultivated oysters. Lepas (*Lepas tunuivalvata* Annandale) was found in clusters attached to the wooden frames of the cages from July to September and in smaller numbers in May.

Of the sub-order Natantia, the following species were found: *Hippolysmata vittata* Stimpson (June to September); *Stenopus robustus* Borradaile (September and October); *Periclimenus spineferus* de Mann (June); *Alpheids* (September) and *Saron marmoratus* Oliver (July).

Reptantia: Crabs belonging to the family *Portunidae* were most abundant in the cages throughout the year. *Charybdys annulata* Fabricius, *Thalamitta prymna* Herbest, *T. admetta* Herbest, *T. woodmasoni* Alcock and *Neptunus pelagicus* Linn formed the majority.

The remainder belonging to the following families were also frequently noticed in the oyster cages.

1. Fam. XANTHIDAE: *Ozius rugulosus* Stimpson; *Xantho euglyptus* Alcock; and *Menippe rumphii* Fabr.

2. Fam. MAIIDAE: *Tylocarcinus styx* Herbest; and *Shizophrys aspera* Milne-Edwards.

Juvenile specimens of *Panulirus dasypus* Labicille were also found in July to September.

Echinodermata: Small specimens of *Pentaceras herdmani* Lutken were noticed in September and October; those of *Salmacis virgulata* Agassiz in August; and of *Astropecten indicus* Doderleir in June, July and August.

Tunicata: Compound ascidian *Diandrocarpa brackenhelmi* Michaelson was observed encrusting the oysters and the oyster cages during the months of south-west monsoon; the small dull reddish leathery ascidian of the genus *Polycarpa* Heller was common in November.

Pisces: Small specimens of the genera *Epinephelus, Tetrodon* and *Balistes* have been found to frequent the oyster cages at Krusadai Island. Specimens of *Petroskirtis leinardi* were also recovered frequently.

Sea weeds: Sea weeds were noticed to be washed on to the cages by the currents in the gulf. They settled more during the north-east monsoon period than in other seasons. The important genera of marine algae noticed adhering to the cages were *Chaetomorpha, Enteromorpha, Ulva, Codium, Padina, Sargassum* and *Gracillaria.*

During the months of south-west and north-east monsoons, the settling was greater. The gulf currents are mainly responsible for the distribution of these animals; but when currents were too strong the settling on the cages was considerably less.

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